03-02-06

PTO/SB/17 (01-06)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL for FY 2006

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 500

Complete if Known	
Application Number	10/054,009
Filing Date	January 21, 2002
First Named Inventor	Saunders et al
Examiner Name	Agustin Bello
Art Unit	2633
Attorney Docket No.	2676-000013

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify) : _____

☒ Deposit Account Deposit Account Number: 08-0750 Deposit Account Name: Harness, Dickey & Pierce, PLC

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayments of fee(s) Under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee($)	Fee($)	Fee($)	Fee($)	Fee($)	Fees Paid ($)
Utility	300	150	500	250	200	100	____
Design	200	100	100	50	130	65	____
Plant	200	100	300	150	160	80	____
Reissue	300	150	500	250	600	300	____
Provisional	200	100	0	0	0	0	____

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee($)	Fee Paid ($)
____ -20 or HP=	0	x ____	= 0

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee($)	Fee Paid ($)
____ - 3 or HP=	0	x ____	= 0

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
____	____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
____ -	= 0	/ 50 = 0 (round up to a whole number) x		= 0

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	____
Other (e.g., late filing surcharge) : Appeal Brief	500.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 42824	Telephone 248-641-0230
Name (Print/Type)	Timothy D. MacIntyre		Date 2/28/06

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing this form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

EV 717 343 851 US

PTO/SB/21 (04-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/054,009
Filing Date	January 21, 2002
First Named Inventor	Saunders et al
Art Unit	2633
Examiner Name	Agustin Bello
Total Number of Pages in This Submission	
Attorney Docket Number	2676-000013

ENCLOSURES *(check all that apply)*

- ☒ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment / Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
  - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ After Allowance Communication to Technology Center (TC)
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☒ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) *(please identify below)*:
  Return Postcard

Remarks

The Commissioner is hereby authorized to charge any additional fees that may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 08-0750. A duplicate copy of this sheet is enclosed.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm *or* Individual name	Harness, Dickey & Pierce, P.L.C.	Attorney Name Timothy D. MacIntyre	Reg. No. 42824
Signature			
Date			

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	Dolores R. Lamar	Express Mail Label No.	EV 717 343 851 US (2/28/2006)
Signature		Date	February 28, 2006

Attorney Docket No. 2676-000013

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Group Art Unit:	2633	
Examiner:	Agustin Bello	
Applicants:	Ross Saunders	**Appeal Brief**
Serial No.:	10/054,009	
Filed:	January 21, 2002	
Title:	Network Diagnostic Tool For An Optical Transport Network	

BRIEF ON BEHALF OF APPELLANTS

This is an appeal from the action of the Examiner dated November 1, 2005, finally rejecting Claims 1-7, 9-31 and 33-36 of the present application. Copies of the appealed claims are attached as an appendix.

I. Real Party In Interest

The real party in interest in the present application is PTS Corporation who is the current assignee of the application.

II. Related Appeals and Interferences

There are no known related appeals or interferences which will directly affect, be directly affected by, or otherwise have a bearing on the Board's decision in the pending appeal.

III. Status Of The Claims

Claims 1-7, 9-31 and 33-36 are pending in the present application. Applicant has yet to receive an Advisory Action from the Examiner and therefore assumes that each of the pending claims stand rejected and are appealed. Claims 8 and 32 were previously cancelled from the application.

IV. Status Of Amendments

Applicant's response after final rejection did not propose any amendments to the pending claims. Therefore, Claims 1-7, 9-31 and 33-36 stand as amended by the applicant's response filed on August 22, 2005 and as presented in the attached appendix.

V. Summary of the Claimed Subject Matter

Applicant's invention is directed generally to a network diagnostic system for an optical transport network. The diagnostic system is characterized by the use of on-board optical and electronic test equipment that is directly integrated into the network elements residing in the optical network. The diagnostic system then employs a cost effective mechanism for initiating diagnostic operations at each of these network elements. For example, a request to initiate a diagnostic operation may be sent from a remote diagnostic device to an intermediary network element residing in the optical transport network. The intermediary network element in turn maps the request into an optical network frame and transmits the optical frame over an optical supervisory channel to the intended network element. The requested network diagnostic operation is initiated upon receipt of the request at the intended network element. In this way, the remote diagnostic device can initiate a diagnostic operation at any of the network elements using a single connection to only one of the network elements. As a result, Applicant's invention avoids the added expense of an overlay network which would be needed to communicate with each of the elements of the optical transport network.

Claim 1 is directed generally to a network diagnostic system 10 for an optical transport network having a plurality of network elements 12. More specifically, the diagnostic system 10 includes at least one network element 12 residing in the optical transport network and having a network diagnostic operation integrated therein, where the network diagnostic operation directly monitors an optical signal traversing the optical

transport network; and a network diagnostic device 14 in data communication with a second network element 12 residing in the optical transport network. The second network element 12 is adapted to receive a request to initiate a network diagnostic operation from the network diagnostic device, map the request into at least one optical network frame and transmit the optical network frame over an optical supervisory channel of the optical transport network to the first network element, thereby initiating the network diagnostic operation at the first network element.

Claim 21 is directed generally to a method for diagnosing an optical transport network in a manner similar to Claim 1. Basis for these claims may be found throughout the application as originally filed, including on pages 5 and 6 of the specification.

Claim 34 is directed generally to a data record for communicating network performance data from an optical time domain reflector test as shown in Figure 3. Basis for this claim is also found on pages 7-11 of the specification as originally filed.

Claim 35 is directed generally to a data record for communicating network performance data from an optical spectrum analyzer test as shown in Figure 5. Basis for this claim is also found on pages 12 and 13 of the specification as originally filed.

Claim 36 is directed generally to a data record for communicating network performance data from a Q mapping test as shown in Figure 11. Basis for this claim is also found on pages 16-20 of the specification as originally filed.

VI. Grounds of Rejection to be Reviewed on Appeal

I. Whether Claims 1-6, 9, 10 and 21 are unpatentable over U.S. Patent No. 6,778,778 (Richards) under 35 U.S.C. §102(b)?

II. Whether Claims 34-36 are unpatentable over Richards under 35 U.S.C. §103(a)?

VII. Arguments

I. Rejection of Claims 1-7 and 11-31 as being unpatentable over U.S. Patent No. 6,778,778 (Richards).

Richards is also directed to an arrangement for testing a telecommunications circuit. Briefly, a transmitter 12 is optically coupled to the DWDM circuit 16 and transmits a test-drive signal on the circuit. Performance of the circuit is monitored at points along the network based on the transmitted test-drive signal. To do so, Richards employs an overlay network 24 (e.g., see col. 5, lines 24-42). In this approach, there is a communication link between the network 24 and each of the network elements 56, 58, 60 as shown in Figure 1. It is noted that this communication link is external to the DWDM circuit 16. Thus, Richards fails to teach or suggest as a network diagnostic system where diagnostic requests and other information is communicated amongst the network elements using optical frames transmitted over an optical supervisory channel of the optical network as recited in Applicant's claimed invention.

With reference to the Office Action dated November 1, 2005, the display device 62, the transmitter 12 and the network 24 in Richards are construed to be the network diagnostic device, the first network element and the second network element, respectively, as recited in the pending claims. In accordance with this interpretation, network 24 in Richards should receive a request from the display device 62, map the

request into an optical network frame and transmit the optical network frame over an optical supervisory channel of an optical transport network to the transmitter. Applicant asserts this interpretation of Richards fails to anticipate the claimed invention of the present application.

First, Applicant does not concede that the display device 62 is not able to initiate a diagnostic operation by the transmitter 12. With reference to col. 6, lines 6-7, the test-drive signal is activated by the field technician pressing the laser power actuator on the transmitter. Thus, the display device 62 is used to monitor performance of the network elements, but not to initiate any diagnostic operation at the transmitter 12.

Moreover, network 24 fails to map a request into an optical network frame and transmit the optical network frame as recited in Applicant's claimed invention. Network 24 operates under an Ethernet communications protocol as noted at col. 5, lines 32-33. This Ethernet network is clearly distinct from the optical network which is designated as DWDM circuit 16. To the extent that a request could be sent from the display device 62 to the transmitter 12, Richards merely discloses that this request is carried entirely over an Ethernet network. With reference to col. 6, lines 48-61, the Examiner claims that network 24 can be construed as an optical network. However, put in its proper context, alternative embodiments suggested by this paragraph are not meant to apply to network 24, but to DWDM circuit 16. Accordingly, Richards fails to teach or suggest that such a request would be mapped to an optical frame prior to reaching the transmitter as asserted by the Examiner.

As previously noted, Claim 1 recites a "second network element adapted to

receive a request to initiate the network diagnostic operation from the network diagnostic device, [where] the second element operable to map the request into at least one optical network frame and transmit the optical network frame over an optical supervisory channel of the optical transport network to the first network element", in combination with other elements of the claim. Applicant notes that "operable to map" positively recites a function performed by the second network element and is not an intended use of this element as asserted by the Examiner. Since this aspect of the present invention is not disclosed by Richards, it is respectfully submitted that Claim 1, along with the claims depending therefrom, defines patentable subject matter over Richards.

Applicant notes that independent Claim 21 recites subject matter similar to Claim 1, and thus should be allowable, along with claims depending therefrom, for the same reasons as Claim 1. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection by the Board.

II. Rejection of Claims 9 and 10 as being unpatentable over U.S. Patent No. 6,778,778 (Richards).

In an exemplary embodiment of the present invention, the request from the network diagnostic device is sent over an Ethernet network to the second network element. Therefore, the second network element maps the Ethernet frames to the optical network frames as recited in Claim 9; whereas, the first network element extracts the Ethernet frames from the optical network frames as recited in Claim 10. These claims further define a distinguishing feature of the present invention from the relied upon

reference. Richards also fails to teach or suggest this aspect of Applicant's claimed invention. Accordingly, Applicant also requests reconsideration and withdrawal of this rejection by the Board.

III. Rejection of Claim 34-36 as being unpatentable over Richards.

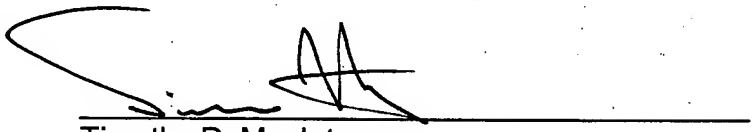
Claims 34-36 are directed generally to data records for communicating network performance data. The Examiner concedes that Richards fails to disclose the particular diagnostic operations associated with these data records. The Examiner then asserts that such diagnostic operations are known in the art. Applicant does not concede this point.

Nonetheless, even if the Examiner is correct, this mere assertion by the Examiner is insufficient to reject the pending claims. Beyond performing a particular diagnostic operation, the art must show that the results of such operations were transmitted across a network between devices. Without this teaching there is no need to formulate a record for transmitting the data. The need for such a data record arose in the context of Applicant's invention. Therefore, Applicant formulated a particular data structure for transmitting the most pertinent information associated with a few of the most important diagnostic operations. Claims 24-36 recites particular data structures which the applicant believes to be novel. Since the relied upon reference fails to disclose the particular diagnostic operations associated with these data records, the need for formulating a data record or the specific format of the data record as recited in the pending claims, it is submitted that these claims are patentably distinct over this relied upon reference.

To the extent that the Examiner is relying upon common knowledge for this rejection, the Applicant requests that the Examiner provide documentary evidence in support of his assertion. MPEP §2144.03. It is noted that the Applicant first contested the basis for this rejection in their response filed on March 7, 2005.

For the foregoing reasons, the appealed claims are patentably distinguishable over the art relied upon by the Examiner. Accordingly, Applicant's representative respectfully requests that this Board reverse the final rejection of Claims 1-7, 9-31 and 33-36.

Respectfully submitted,



Timothy D. MacIntyre
Registration No. 42,824

Dated: February 28, 2006

HARNESS, DICKEY & PIERCE
P.O.Box 828
Troy, Michigan 48303
(248) 641-1600

TDM/drl

Claims Appendix

1. (previously presented) A network diagnostic system for an optical transport network having a plurality of network elements, comprising;

a first network element residing in the optical transport network, the first network element having a network diagnostic operation integrated therein and operable to perform the network diagnostic operation, wherein the network diagnostic operation directly monitors an optical signal traversing the optical transport network; and

a network diagnostic device in data communication with a second network element residing in the optical transport network and operable to initiate the network diagnostic operation at the first network element;

the second network element adapted to receive a request to initiate the network diagnostic operation from the network diagnostic device, the second element operable to map the request into at least one optical network frame and transmit the optical network frame over an optical supervisory channel of the optical transport network to the first network element.

2. (original) The network diagnostic system of the Claim 1 wherein the first network element is further operable to communicate the network performance data determined by the network diagnostic operation to the network diagnostic device.

3. (original) The network diagnostic system of Claim 2 wherein the network diagnostic device is operable to display the network performance data received from the first network element.

4. (previously presented) The network diagnostic system of Clam 1 wherein the network diagnostic device is directly connected to the second network element.

5. (previously presented) The network diagnostic system of Claim 1 wherein the network diagnostic device is connected via a computer network to the second network element.

6. (previously presented) The network diagnostic system of Claim 5 wherein the second network element is further operable to communicate in real-time the network performance data determined by the network diagnostic operation to the network diagnostic device using TL1 network management protocol.

7. (previously presented) The network diagnostic system of Claim 5 wherein the first network element is further operable to store the network performance data in a storage medium residing on the second network element and the network

diagnostic device operable to retrieve the network performance data from the second network element using a file transfer protocol.

8. (cancel)

9. (previously presented) The network diagnostic system of Claim 1 wherein the second network element is adapted to receive Ethernet frames from the network diagnostic device, where the Ethernet frames embody the request to initiate the network diagnostic operation; the second network element being further operable to map the Ethernet frames into at least one optical network frame and transmit the optical network frames over an optical supervisory channel of the optical transport network.

10. (original) The network diagnostic system of Claim 9 wherein the first network element is adapted to receive the optical network frames over the optical supervisory channel from the second network element and to extract the Ethernet frames from the optical network frames.

11. (Original) The network diagnostic system of Claim 1 wherein the network diagnostic function is selected from the group comprising an optical time domain

reflectometer test, an optical spectrum analyzer test, a bit error rate test, and a Q contour mapping test.

12. (original) The network diagnostic system of Claim 1 wherein the network diagnostic operation is further defined as an optical time domain reflectometer test, such that the network performance data is optical attenuation data for an optical trace signal traversing one or more optical spans in the optical transport network and fiber characteristic data for the optical spans.

13. (original) The network diagnostic system of Claim 12 wherein the optical attenuation data is expressed in terms of reflected optical power data, and corresponding measurement point data.

14. (original) The network diagnostic system of Claim 13 wherein the optical attenuation data further includes trace event data for a plurality of trace events, where each trace event data is expressed in terms of an event identifier, an event type, an event distance, reflectance associated with the event, insertion loss associated with the event, cumulative loss for the event, attenuation between the event and a subsequent event, and an event description.

15. (original) The network diagnostic system of Claim 1 wherein the network diagnostic operation is further defined as an optical spectrum analyzer test, such

that the network performance data is signal power data for an optical data signal traversing through the optical transport network.

16. (original) The network diagnostic system of Claim 15 wherein the signal power data is expressed in terms of optical power data and corresponding measured wavelength data.

17. (original) The network diagnostic system of Claim 16 wherein the signal power data further includes channel trace data, where the channel trace data is further defined as a channel identifier, a measured channel wavelength, a variance of the measured wavelength in relation to the provisioned wavelength for the channel and a signal-to-noise ratio value for the channel.

18. (original) The network diagnostic system of Claim 1 wherein the network diagnostic operation is further defined as a bit rate error test, such that the network performance data is bit rate error data for an optical data signal traversing through the optical transport network.

19. (original) The network diagnostic system of Claim 1 wherein the network diagnostic operation is further defined as a Q contour mapping test, such that the network performance data is Q contour mapping data.

20. (original) The network diagnostic system of Claim 19 wherein the Q contour mapping data is expressed in terms of a sampling phase percentage, a decision threshold percentage and a Q value.

21. (previously presented) A method for diagnosing an optical transport network having a plurality of network elements, comprising:

integrating a diagnostic operation into a first network element in the optical transport network;

transmitting a request for the diagnostic operation from a network diagnostic device remotely located from the first network element to a second network element in the optical transport network;

communicating the request from the second network element via an optical supervisory channel to the first network element;

performing the diagnostic operation on the first network element, wherein the network diagnostic operation directly monitors an optical signal traversing the optical transport network; and

communicating the network performance data to the network diagnostic device.

22. (original) The method of Claim 21 wherein the diagnostic operation is selected from the group comprising an optical time domain reflectometer test, an optical spectrum analyzer test, a bit error rate test, and a Q contour mapping test

23. (original) The method of Claim 21 wherein the step of performing the diagnostic operation further comprises carrying out an optical time domain reflector test, such that the such that the network performance data is optical attenuation data for an optical trace signal traversing one or more optical spans in the optical transport network and fiber characteristic data for the optical spans.

24. (original) The method of Claim 23 wherein the optical attenuation data is expressed in terms of reflected optical power data, and corresponding measurement point data.

25. (original) The method of Claim 24 wherein the optical attenuation data further includes trace event data for a plurality of trace events, where each trace event data is expressed in terms of an event identifier, an event type, an event distance, reflectance associated with the event, insertion loss associated with the event, cumulative loss for the event, attenuation between the event and a subsequent event, and an event description.

26. (original) The method of Claim 21 wherein the step of performing the diagnostic operation further comprises carrying out an optical spectrum analyzer test, such that the network performance data is signal power data for an optical data signal traversing through the optical transport network.

27. (original) The method of Claim 26 wherein the signal power data is expressed in terms of optical power data and corresponding measured wavelength data.

28. (original) The method of Claim 27 wherein the signal power data further includes channel trace data, where the channel trace data is further defined as a channel identifier, a measured channel wavelength, a variance of the measured wavelength in relation to the provisioned wavelength for the channel and a signal-to-noise ratio value for the channel.

29. (original) The method of Claim 21 wherein the step of performing the diagnostic operation further comprises carrying out a bit rate error test, such that the network performance data is bit rate error data for an optical data signal traversing through the optical transport network.

30. (original) The method of Claim 21 wherein the step of performing the diagnostic operation further comprises carrying out a Q contour mapping test, such that the network performance data is Q contour mapping data.

31. (original) The method of Claim 30 wherein the Q contour mapping data is expressed in terms of a sampling phase percentage, a decision threshold percentage and a Q value.

32. (cancel)

33. (previously presented) The method of Claim 1 herein the step of communicating the operation to the first network element further comprises mapping Ethernet frames into a payload portion of one or more optical network frames and transmitting the optical network frames over an optical supervisory channel in the optical transport network.

34. (original) A data record for communicating network performance data from an optical time domain reflectometer test, the data record embodied in a carrier wave, comprising:

header data that stores identification information about the data record;

optical attenuation data that stores information for an optical trace signal which traverses one or more optical spans in an optical transport network, where the optical attenuation data is expressed in terms of reflected optical power and corresponding measurement points;

trace event data that stores information about events that are detected during the optical trace; and

fiber data that stores refractive index information for each of the optical spans implicated in the optical trace.

35. (original) A data record for communicating network performance data from an optical spectrum analyzer test, the data record embodied in a carrier wave, comprising:

header data that stores identification information about the data record;

signal power data that stores information for an optical data signal which traverses an optical transport network, where the signal power data is expressed in terms of optical power and corresponding measured wavelength; and

channel data that stores information for each channel embodied in the optical data signal.

36. (original) A data record for communicating network performance data from a Q contour mapping test, the data record embodied in a carrier wave, comprising:

header data that stores identification information about the data record; and

contour mapping data that stores information for an optical data signal received at a receiver in an optical transport network, where the contour mapping data is expressed in terms of sampling phase percentage, decision threshold percentage and corresponding Q value for the optical data signal.

Evidence Appendix

None

Related Proceedings Appendix

None